AIR POLLUTION CONTROL
PERMIT TO CONSTRUCT

Pursuant to Chapter 23-25 of the North Dakota Century Code, and the Air Pollution Control Rules of the State of North Dakota (Article 33-15 of the North Dakota Administrative Code), and in reliance on statements and representations heretofore made by the owner designated below, a Permit to Construct is hereby issued authorizing such owner to construct and initially operate the source unit(s) at the location designated below. This Permit to Construct is subject to all applicable rules and orders now or hereafter in effect of the North Dakota Department of Health and to any conditions specified below:

I. **General Information**:

A. **Permit to Construct Number**: PTC14027

B. **Source**:

1. Name: CHS, Inc.

2. Location: NW ¼, SE ¼, Sec. 24, Township 140 North, Range 62 West
Stutsman County, North Dakota

3. Source Type: Fertilizer Plant

4. Equipment at the Facility:

This Air Pollution Control Permit to Construct is for the Spiritwood Nitrogen Plant, a fertilizer manufacturing plant which will manufacture nitrogen-based products ammonia, urea, urea ammonium nitrate (UAN) and diesel exhaust fluid (DEF). The facility will produce both feedstock and saleable products in the following nominal capacities:

- 2,425 tons/day ammonia
- 3,000 tons/day urea solution
- 3,000 tons/day granular urea
- 835 tons/day nitric acid
- 2,000 tons/day UAN

Additionally, the plant will feature the necessary equipment to support operations and delivery of saleable products at the following nominal rates:

- 1,200 tons/day ammonia
- 25,000 tons/day granular urea
- 1,000 tons/day diesel exhaust fluid (DEF)
- 6,500 tons/day UAN

The facility will be located in Stutsman County, North Dakota approximately 2 miles southeast of Spiritwood, ND and 12 miles east of Jamestown, ND.

Emission units at the facility are as follows:

Emission Unit Description	Process Unit	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Primary reformer fired on natural gas with a rated heat input of approximately 788 million Btu/hr	Ammonia plant	11-L-201	11-L-201	Low NOx Burners & Selective Catalytic Reduction (SCR)
CO_2 Regenerator	Ammonia plant	11-L-310B*	11-L-310	Low Residual Methanol Inherent in Shift Conversion Catalyst Process Design and Wet Scrubber*
		11-L-310A**		Low Residual Methanol Inherent in Shift Conversion Catalyst Process Design
Urea granulation process	Urea granulation	19-L-150A	19-L-155	Ultra Low NOx Burners & Wet Scrubbers****
		19-L-150B		
Urea plant flare	Urea plant	10-PK-113	10-PK-113	None
Urea plant emergency relief flare	Urea plant	10-PK-111	10-PK-111	None
Ammonia front end flare	Ammonia plant	11-PK-801	11-PK-801	None
Ammonia back end flare	Ammonia plant	11-PK-802	11-PK-802	None
Ammonia tanks flare	Outside the battery limit (OSBL)	21-L-002	21-L-002	None
Nitric acid production	Nitric acid plant	15-L-1801	15-L-1801	SCR and N_2O Reduction System
UAN plant – AN neutralizer particulate demister	UAN plant	15-L-5406	15-L-5406	Wet Scrubber Inherent to the Process Equipment
MDEA storage tank	Ammonia plant	11-T-301	11-T-301	Nitrogen Blanket and Submerged Fill Pipe
Off-spec Condensate Storage Tank (290,589 gal.)	Ammonia plant	11-T-701	11-T-701	Submerged Fill Pipe
#1 UAN product tank (67,892 gal.)	OSBL	21-T-301A	21-T-301A	None
#2 UAN product tank (67,892 gal.)	OSBL	21-T-301B	21-T-301B	None
#3 UAN product tank (67,892 gal.)	OSBL	21-T-301C	21-T-301C	None
UF-85 urea formaldehyde tank (67,892 gal.)	Urea granulation	19-T-150	19-T-150	Submerged Fill Pipe
Diesel Exhaust Fluid (DEF) Product Tank (2,200,000 gal.)	OSBL	21-T-101	21-T-101	None
DEF Day Tank (92,000 gal.)	OSBL	21-T-102	21-T-102	None
Diesel Storage Tank (12,000 gal.)	OSBL	22-T-301	22-T-301	Submerged Fill Pipe

Emission Unit Description	Process Unit	Emission Unit (EU)	Emission Point (EP)	Air Pollution Control Equipment
Locomotive Diesel Storage Tank (44,000 gal.)	OSBL	22-T-302	22-T-302	Submerged Fill Pipe
Package boiler with a rated heat input capacity of 280 million Btu/hr and fired on natural gas	OSBL	23-B-301	23-B-301	Ultra Low NOx Burners and Flue Gas Recirculation
Deaerator	OSBL	23-PK-301	23-PK-301	None
Cooling tower	OSBL	23-PK-601	23-PK-601	Drift Eliminators Inherent to Design
Emergency generator 1 driven by a lean burn engine rated at approximately 3,353 bhp and fired on diesel fuel	OSBL	22-G-801A	22-G-801A	***
Emergency generator 2 driven by a lean burn engine rated at approximately 3,353 bhp and fired on diesel fuel	OSBL	22-G-801B	22-G-801B	***
Emergency lean burn engine (fire pump) rated at approximately 600 bhp and fired on diesel fuel	OSBL	23-P-002B	23-P-002B	***
Granulated urea handling and storage	Urea granulation	21-MH01	21-MH01	Enclosures/ Pollution Prevention/ Bin Vent Filters
Truck loading – UAN, ammonia, diesel exhaust fluid (DEF) and granulated urea	OSBL	21-PK-301	SW-TL01	Best Management Practices
		21-PK-002		
		21-PK-103		
		21-PK-212		
Railcar loading – UAN, ammonia, DEF and granulated urea	OSBL	21-PK-302	SW-RL01	Best Management Practices
		21-PK-003		
		21-PK-104		
		21-PK-213		
Ammonia plant heater (startup heater) rated at 40 million Btu/hr and fired on natural gas	Ammonia plant	11-F-501	11-F-501	None
Fugitive emissions	Plant-wide	SW-FUG01	SW-FUG01	Leak Detection and Repair Program
Haul roads	Plant-wide	FUG-RD	FUG-RD	Paved Roads / Best Management Practices

* CO_2 Scrubber (normal operation).

** CO_2 Vent (urea plant shutdown).

*** The engines shall be certified to emissions standards as outlined under 40 CFR 60, Subparts IIII and 40 CFR 63, Subpart ZZZZ. The engines shall be manufactured with appropriate control equipment to meet these emissions standards.

**** Venting from the granulator (19-L-150A/B) is sent to a granulator scrubber. Venting from the first fluid bed cooler and final fluid bed cooler is sent to a coolers scrubber. Vents from both scrubbers discharge to EP 19-L-155. A 45 million Btu/hr natural gas-fired heater is used to pre-heat air for the urea synthesis process during the winter season; this heater vents to EP 19-L-155.

C. **Owner/Operator (Permit Applicant)**:

1. Name: CHS, Inc.
2. Address: 5500 Cenex Drive
   Inver Grove Heights, MN 55077

3. Application Date: September 19, 2013

II. **Conditions**: This Permit to Construct allows the construction and initial operation of the above-mentioned new or modified equipment at the source. The source may be operated under this Permit to Construct until a Permit to Operate is issued unless this permit is suspended or revoked. The source is subject to all applicable rules, regulations, and orders now or hereafter in effect of the North Dakota Department of Health and to the conditions specified below.

A. **Emission Limits**: Emission limits from the operation of the source unit(s) identified in Item I.B of this Permit to Construct (hereafter referred to as "permit") are as follows. Source units not listed are subject to the applicable emission limits specified in the North Dakota Air Pollution Control Rules.

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Primary Reformer	11-L-201	11-L-201	NOx	0.020 lb/million Btu heat input (30-day rolling avg.)	33-15-15-01.2 (BACT)
			NOx	15.65 lb/hr (1-hr. avg.)	33-15-02
			CO	0.021 lb/million Btu heat input (30-day rolling avg.)	33-15-15-01.2 (BACT)
			$PM/PM_{10}/PM_{2.5}$	0.0067 lb/million Btu heat input (1-hr avg.)*	33-15-15-01.2 (BACT)
			VOC	0.00154 lb/million Btu heat input (1-hr. avg.)*	33-15-15-01.2
			CO_2e	509,665 tons/year (12-month rolling total)	33-15-15-01.2 (BACT)
			Opacity	5%	33-15-15-01.2 (BACT)
CO_2 Regenerator	11-L-310A	11-L-310	CO_2e	267,584 tons/year (12-month rolling total)	33-15-15-01.2 (BACT)
	11-L-310B				
			Methanol	9.50 tons/year (12-month rolling total)	33-15-14-02.9

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Urea Granulation Process	19-L-150A & 19-L-150B	19-L-155	PM/PM_{10}	20.0 mg/Nm^3 (1-hr. avg.)*	33-15-15-01.2 (BACT)
			$PM_{2.5}$	10.0 mg/Nm^3 (1-hr. avg.)*	33-15-15-01.2 (BACT)
			PM_{10}	32.80 lb/hr	33-15-02
			$PM_{2.5}$	12.67 lb/hr	33-15-02
			Ammonia	80.0 lb/hr (24-hr block avg.)	33-15-02
			NO_x	0.040 lb/million Btu heat input (1-hr. avg.)*	33-15-15-01.2 (BACT)
			CO	0.060 lb/million Btu heat input (1-hr. avg.)*	33-15-15-01.2 (BACT)
			CO_2e	25,392 tons/year (12-month rolling total)	33-15-15-01.2 (BACT)
			Opacity	5%	33-15-15-01.2 (BACT)
Urea Plant Flare	10-PK-113	10-PK-113	Opacity	No visible emissions (see Condition II.A.4)	33-15-15-01.2 (BACT)
Urea Plant Emergency Relief Flare	10-PK-111	10-PK-111	Opacity	No visible emissions (see Condition II.A.4)	33-15-15-01.2 (BACT)
Ammonia Front End Flare	11-PK-801	11-PK-801	Opacity	No visible emissions (see Condition II.A.4)	33-15-15-01.2 (BACT)
Ammonia Back End Flare	11-PK-802	11-PK-802	Opacity	No visible emissions (see Condition II.A.4)	33-15-15-01.2 (BACT)
Ammonia Tanks Flare	21-L-002	21-L-002	Opacity	No visible emissions (see Condition II.A.4)	33-15-15-01.2 (BACT)
Nitric Acid Plant (Nitric Acid Tail Gas Abator)	15-L-1801	15-L-1801	NOx	0.33 lb/ton of 100% nitric acid produced (30-day rolling average)	33-15-15-01.2 (BACT)
			NOx	17.0 lb/hr (1-hr avg.)	33-15-02
			N_2O	96.5% control efficiency*	33-15-15-01.2 (BACT)
			CO_2e	22,648 tons/year (12-month rolling total)	33-15-15-01.2 (BACT)
UAN Plant (AN neutralizer particle demister)	15-L-5406	15-L-5406	$PM/PM_{10}/PM_{2.5}$	0.61 lb/ton of ammonium nitrate produced (1-hr avg.)*	33-15-15-01.2 (BACT)
			$PM/PM_{10}/PM_{2.5}$	2.30 lb/hr (1-hr. avg.)*	33-15-02
			Opacity	5%	33-15-15-01.2 (BACT)

Emission Unit	EU	EP	Pollutant/ Parameter	Emission Limit or Design / Work Practice	NDAC Applicable Requirement
Package Boiler	23-B-301	23-B-301	NOx	0.018 lb/MM Btu heat input (30-day rolling average)	33-15-15-01.2 (BACT)
			NOx	5.04 lb/hr (1-hr. avg.)	33-15-02
			CO	0.060 lb/MM Btu (1-hr. avg.)*	33-15-15-01.2 (BACT)
			$PM/PM_{10}/PM_{2.5}$	0.0067 lb/MM Btu heat input (1-hr avg.)*	33-15-15-01.2 (BACT)
			GHG (as CO_2e)	143,501 tons/yr (12-month rolling total)	33-15-15-01.2 (BACT)
			Opacity	5%	33-15-15-01.2 (BACT)
Cooling Tower	23-PK-601	23-PK-601	$PM/PM_{10}/PM_{2.5}$	BMP / Mist Eliminators (see Conditions II.A.2 and II.A.5)	33-15-15-01.2 (BACT)
Emergency Generator 1	22-G-801A	22-G-801A	Opacity	5%	33-15-15-01.2 (BACT)
Emergency Generator 2	22-G-801B	22-G-801B	Opacity	5%	33-15-15-01.2 (BACT)
Emergency Engine (fire pump)	23-P-002B	23-P-002B	Opacity	5%	33-15-15-01.2 (BACT)
Granulated Urea Handling and Storage	21-MH01	21-MH01	$PM/PM_{10}/PM_{2.5}$	Enclosures / Pollution Prevention / Bin Vent Filters (See Condition II.A.3)	33-15-15-01.2 (BACT)
			Opacity**	5%	33-15-15-01.2 (BACT)
Truck Loading	21-PK-301 21-PK-002 21-PK-103 21-PK-212	SW-TL01	$PM/PM_{10}/PM_{2.5}$	BMP (See Conditions II.A.2 and 3)	33-15-15-01.2 (BACT)
Railcar Loading	21-PK-302 21-PK-003 21-PK-104 21-PK-213	SW-RL01	$PM/PM_{10}/PM_{2.5}$	BMP (See Conditions II.A.2 and 3)	33-15-15-01.2 (BACT)
Ammonia Plant Heater	11-F-501	11-F-501	Opacity	5%	33-15-15-01.2 (BACT)
Fugitive Emissions	SW-FUG01	SW-FUG01	VOC/CO_2e	Leak Detection and Repair Program (See Condition II.A.6)	33-15-15-01.2 (BACT)
Haul roads	FUG-RD	FUG-RD	$PM/PM_{10}/PM_{2.5}$	Paved roads / BMP (see Condition II.A.7)	33-15-15-01.2 (BACT)

* Compliance is determined based on the average of three test runs of at least 1 hour in length (one test, average of three runs).
** Opacity limit is applicable to bin vent filters.

Note: For the purposes of this permit, a "ton" is a short ton (2,000 pounds). The global warming potentials used to calculate carbon dioxide equivalent (CO_2e) emissions are 25 for methane and 298 for nitrous oxide.

1. **Fuel Restriction**: With the exception of the engines at the facility (EUs 22-G-801A, 22-G-801B and 23-P-002B), all combustion devices at the facility shall be fired on pipeline quality natural gas. Natural gas combusted shall contain no more than 2 grains of sulfur per 100 standard cubic feet. The engines shall be fired on ultra low sulfur diesel fuel.

2. **Best Management Practices**: At all times, including periods of startup, shutdown, and malfunction, the permittee shall, to the extent practicable, maintain and operate any affected facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

3. **Granulated Urea Handling and Storage Control**: Emissions from Granulated Urea Handling and Storage (EU 21-MH01) shall be controlled using the following methods:

   a. Anti-caking additive shall be used during production of granulated urea.
   b. The granulated urea product shall be transferred from production to storage via enclosed conveyors with enclosed transfer points.
   c. The granulated urea product shall be stored in an enclosed warehouse.
   d. The granulated urea product shall be transferred from the storage area to the load out area via enclosed conveyors. The exhaust stream from the transfer into the final load-out surge bin will be exhausted through a bin vent filter designed to control particulate matter emissions to no more than 0.005 grains per dry standard cubic foot.
   e. Except for final truck and railcar loading, granulated urea load out operations will take place within enclosed buildings. Truck loading will take place in partially enclosed (3-sided) areas to provide shelter from winds. The loading of granulated urea into the railcar or truck will be accomplished using telescoping chutes inserted into the railcar or truck.

4. **Flare Visible Emissions**: Flares shall be operated with no visible emissions except for periods not to exceed a total of five minutes during any two consecutive hours.

   Reference Method 22 of 40 CFR 60, Appendix A shall be used to determine compliance with this visible emissions provision.

5. **Cooling Tower Drift Eliminators**: The cooling tower shall be equipped with and operated with mist eliminators that are guaranteed to limit drift to 0.0005% or less.

6. **Fugitive Leak Detection and Repair (LDAR)**: The permittee shall:

   a. Implement an instrumental leak detection and repair program to minimize fugitive emissions from facility components in VOC service as defined by 40 CFR 60, Subpart VV. The program shall include quarterly leak inspections. A leak is detected when the instrument measures a concentration of 500 ppm or more of methane above background. Repairs shall be made as soon as practicable.

Records shall be kept of all inspections and repairs. The records shall be available to the Department upon request.

b. Implement an auditory, visual and olfactory (AVO) monitoring program to minimize fugitive ammonia and methane emissions from facility components in ammonia or natural gas service. The program shall include monthly leak inspections. A leak is detected when an odor is detected from a component. Repairs shall be made as soon as practicable. Records shall be kept of all inspections and repairs. The records shall be available to the Department upon request.

7. **Haul Roads**: The permittee shall maintain all haul roads within the property boundary of the facility in a paved state and apply best practices to minimize emissions. If visible plumes of particulate matter are being formed from the truck traffic on the haul roads, wetting and/or sweeping of the haul road must be completed as soon as practicable to minimize particulate matter emissions from the haul road.

B. **Emissions Testing**:

1. Initial Testing: Within 60 days after achieving the maximum production rate at the plant, but not later than 180 days after startup of the source, the permittee shall conduct emissions tests for the following emission units / contaminants:

Emissions Testing

Emission Unit	EP	Contaminant
Primary Reformer	11-L-201	$PM/PM_{10}/PM_{2.5}$ Opacity VOC
Urea Granulation Process	19-L-155	$PM/PM_{10}/PM_{2.5}$ NO_x CO Ammonia Opacity
UAN Plant	15-L-5406	$PM/PM_{10}/PM_{2.5}$ Opacity
Package Boiler	23-B-301	$PM/PM_{10}/PM_{2.5}$ CO Opacity
Nitric Acid Plant	15-L-1801	N_2O (inlet/outlet to control device)
CO_2 Regenerator	11-L-310*	Methanol

* Separate testing shall be conducted under normal operations and during urea plant shutdown.

2. Notification: The permittee shall notify the Department using the form in the Emission Testing Guideline, or its equivalent, at least 30 calendar days in advance of any tests of

emissions of air contaminants required by the Department. If the permittee is unable to conduct the performance test on the scheduled date, the permittee shall notify the Department at least five days prior to the scheduled test date and coordinate a new test date with the Department.

3. Sampling Ports/Access: Sampling ports shall be provided downstream of all emission control devices and in a flue, conduit, duct, stack or chimney arranged to conduct emissions to the ambient air.

   The ports shall be located to allow for reliable sampling and shall be adequate for test methods applicable to the facility. Safe sampling platforms and safe access to the platforms shall be provided. Plans and specifications showing the size and location of the ports, platform, and utilities shall be submitted to the Department for review and approval.

4. Other Testing:

   a. The Department may require the permittee to have tests conducted to determine the emission of air contaminants from any source, whenever the Department has reason to believe that an emission of a contaminant not addressed by the permit applicant is occurring, or the emission of a contaminant in excess of that allowed by this permit is occurring. The Department may specify testing methods to be used in accordance with good professional practice. The Department may observe the testing. All tests shall be conducted by reputable, qualified personnel. The Department shall be given a copy of the test results in writing and signed by the person responsible for the tests.

      All tests shall be made and the results calculated in accordance with test procedures approved by the Department. All tests shall be made under the direction of persons qualified by training or experience in the field of air pollution control as approved by the Department.

   b. The Department may conduct tests of emissions of air contaminants from any source. Upon request of the Department, the permittee shall provide the necessary holes in stacks of ducts and such other safe and proper sampling and testing facilities, exclusive of instruments and sensing devices, as may be necessary for proper determination of the emission of air contaminants.

5. CO_2 Regenerator Under Normal Operation (EU 11-L-310B): In addition to the initial methanol emissions test required under Condition II.B.1 of this permit, the permittee shall conduct an emissions test to measure methanol emissions from EU 11-L-310B no sooner than 180 days after startup of the source and within 365 days of startup of the source. The emissions test required under this condition shall be conducted at least 120 days after the initial methanol emissions test required under condition II.B.1.

6. Nitric Acid Plant (EP 15-L-1801): In addition to the initial nitrous oxide emissions test required under Condition II.B.1 of this permit, the permittee shall conduct an emissions test to measure nitrous oxide emissions from EP 15-L-1801 no sooner than 180 days after startup of the source and within 365 days of startup of the source. The emissions test required under this condition shall be conducted at least 120 days after the initial emissions test required under condition II.B.1.

C. **Emissions Monitoring**:

1. Primary Reformer (EP 11-L-201):

a. Carbon Monoxide (CO): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the CO emission rate from the stack. The system shall report CO emissions in units of pounds of CO per million Btu heat input (30-day rolling average basis). The monitoring system shall include a continuous emission monitor (CEM) which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 4.

b. Nitrogen Oxides (NOx): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the NOx emission rate from the stack. The system shall report NOx emissions in units of pounds of NOx per million Btu heat input (30-day rolling average) and pounds of NOx per hour (1-hour average). The monitoring system shall include a CEM which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 2 and a continuous emission rate monitoring system (CERMS) which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

c. Carbon Dioxide (CO_2): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the CO_2 emission rate from the stack. The system shall report CO_2 emissions on a tons/year (12-month rolling total) basis. The monitoring system shall include a CEM which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 3 and a CERMS which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

2. CO_2 Regenerator (EP 11-L-310):

a. CO_2: The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the gas flow rate from the stack. CO_2 emissions shall be calculated by assuming that the gas flow consists entirely of CO_2. The system shall report CO_2 on a tons/year (12-month rolling total) basis. The monitor shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

3. Nitric Acid Production (EP 15-L-1801):

   a. Nitrogen Oxides (NOx): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the NOx emission rate from the stack. The system shall report NOx emissions in units of pounds of NOx per ton of 100% nitric acid produced (30-day rolling average) and pounds of NOx per hour (1-hour average). The monitoring system shall include a CEM which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 2 and a CERMS which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

   b. Nitrous Oxide (N_2O): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the N_2O emission rate from the stack. The system shall report N_2O emissions in units of parts per million by volume (365-day rolling average) and tons/year (12-month rolling total). The monitoring system shall include a CEM and a CERMS which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

4. Package Boiler (EP 23-B-301):

   a. Nitrogen Oxides (NOx): The permittee shall install, calibrate, operate and maintain equipment for continuously monitoring the NOx emission rate from the stack. The system shall report NOx emissions in units of pounds of NOx per million Btu heat input (30-day rolling average) and pounds of NOx per hour (1-hour average). The monitoring system shall include a CEM which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 2 and a CERMS which shall comply with the requirements of 40 CFR 60, Appendix B, Performance Specification 6.

5. Flares:

   a. The presence of a flame shall be monitored using a thermocouple or any other equivalent device approved by the Department.

   b. The permittee shall install, operate and calibrate a continuous monitoring system to measure and record the flow rate of gas discharged to each flare.

D. **Process Capacities**: This permit is based on the following processing capacities:

1. Feedstock and saleable products nominal capacities: 2,425 tons/day ammonia; 3,000 tons/day urea solution; 3,000 tons/day granular urea; 835 tons/day nitric acid; 2,000 tons/day urea ammonium nitrate.

2. Utilities and product handling, storage, loading and transportation facilities to support the operations and delivery of saleable products at the following nominal rates: 1,200

tons/day ammonia; 25,000 tons/day granular urea; 1,000 tons/day diesel exhaust fluid; 6,500 tons/day urea ammonium nitrate.

The permittee shall not exceed the above processing rates on an annual average basis without prior approval from the Department.

E. **Recordkeeping**: All records shall be available for inspection by Department personnel and shall be submitted to the Department upon request. The following records shall be maintained:

1. All stack test results including field data, laboratory analysis data, and quality assurance data.

2. All continuous emissions monitoring data required by this permit.

3. All emission rate and/or concentration data obtained by the continuous monitors.

4. Temperature data, or other data for an alternative monitoring method approved by the Department, to monitor the presence of a flame at the flare.

5. All recordkeeping required by applicable federal standards established under 40 CFR Part 60 - Standards of Performance for New Stationary Sources.

6. All leak detection and repair records as required by this permit.

The owner/operator shall maintain any compliance monitoring records required by this permit or applicable requirements. The owner/operator shall retain records of all required monitoring data and support information for a period of at least five years from the date of the monitoring sample, measurement, report or application. Support information may include all calibration and maintenance records and all original strip-chart recordings/computer printouts for continuous monitoring instrumentation, and copies of all reports required by the permit.

F. **Stack/Flare Heights**: Emissions shall be vented through stacks/flares that meet the following height requirements. Stack/flare heights may be no less than those listed in the table below without prior approval from the Department.

Emission Unit	Emission Point	Minimum Height (feet)
Primary Reformer	11-L-201	135
CO_2 Regenerator	11-L-310	82
Urea Granulation Process	19-L-155	244
Urea Plant Flare	10-PK-113	190
Urea Plant Emergency Relief Flare	10-PK-111	190

Emission Unit	Emission Point	Minimum Height (feet)
Ammonia Front End Flare	11-PK-801	250
Ammonia Back End Flare	11-PK-802	250
Ammonia Tanks Flare	21-L-002	250
Nitric Acid Production	15-L-1801	135
UAN Plant	15-L-5406	170
Package Boiler	23-B-301	105

G. **Greenhouse Gas Emissions Calculations**: By the 15th day of each month, the owner/operator shall calculate and record the greenhouse gas (GHG) emissions (as CO_2e) from the following emission units for the previous month and for the previous 12 months (12-month rolling total). Emissions shall be calculated in a method as shown below.

$GHG_{REFORMER}$	=	Calculated GHG emissions (in tons, as CO_2e) from the primary reformer (EU 11-L-201)
$GHG_{REFORMER}$	=	$CO_{2\text{-}REFORMER} + CH_{4\text{-}REFORMER} + N_2O_{REFORMER}$
$CO_{2\text{-}REFORMER}$	=	Calculated CO_2 emissions (in tons) from the primary reformer obtained from the CO_2 flow rate monitor for the primary reformer
$CH_{4\text{-}REFORMER}$	=	Methane (CH_4) emissions (in tons, as CO_2e) from the primary reformer
$CH_{4\text{-}REFORMER}$	=	(Amount of natural gas combusted in the reformer, scf) x (2.3 lb CH_4/million scf) x (1 ton / 2,000 lb) x 25
$N_2O_{REFORMER}$	=	Nitrous Oxide (N_2O) emissions (in tons, as CO_2e) from the primary reformer
$N_2O_{REFORMER}$	=	(Amount of natural gas combusted in the reformer, scf) x (0.64 lb N_2O/million scf) x (1 ton / 2,000 lb) x 298
GHG_{REGEN}	=	GHG emissions (in tons, as CO_2e) from the CO_2 Regenerator
GHG_{REGEN}	=	$CO_{2\text{-EU 11-L-310B}} + CO_{2\text{-EU 11-L-310A}}$
$CO_{2\text{-EU 11-L-310B}}$	=	CO_2 emissions from EP 11-L-310B obtained from the CO_2 CERMS for EP 11-L-310B required by this permit
$CO_{2\text{-EU 11-L-310A}}$	=	CO_2 emissions from EP 11-L-310A obtained from the CO_2 CERMS for EP 11-L-310A required by this permit
GHG_{GRAN}	=	GHG emissions (in tons) from the urea granulation process
GHG_{GRAN}	=	$CO_{2\text{-}GRAN} + CH_{4\text{-}GRAN} + N_2O_{GRAN}$
$CO_{2\text{-}GRAN}$	=	CO_2 emissions (in tons) from the urea granulation process

$CO_{2\text{-}GRAN}$	=	(Amount of natural gas combusted in the urea granulation process, scf) x (120,000 lb CO_2/million scf) x (1 ton / 2,000 lb)
$CH_{4\text{-}GRAN}$	=	CH_4 emissions (in tons, as CO_2e) from the urea granulation process
$CH_{4\text{-}GRAN}$	=	[(Amount of natural gas combusted in the urea granulation process, scf) x (2.3 lb CH_4/million scf) x (1 ton/2,000 lb) x 25] + [(Amount of granulated urea produced, tons) x (1.02 lb CH_4/ton of urea produced) x (1 ton/2,000 lb) x 25]
N_2O_{GRAN}	=	N_2O emissions (in tons, as CO_2e) from the urea granulation process
N_2O_{GRAN}	=	(Amount of natural gas combusted in the urea granulation process, scf) x (0.64 lb N_2O/million scf) x (1 ton/2,000 lb) x 298
GHG_{NITRIC}	=	GHG emissions (in tons, as CO_2e) from nitric acid production
GHG_{NITRIC}	=	N_2O_{NITRIC}
N_2O_{NITRIC}	=	N_2O emissions (in tons, as CO_2e) from nitric acid production
N_2O_{NITRIC}	=	[Calculated N_2O emissions (in tons) from nitric acid production (EP 15-L-1801) obtained from the N_2O CERMS for EP 15-L-1801] x 298
GHG_{BOILER}	=	Calculated GHG emissions (in tons) from the package boiler (EU 23-B-301)
GHG_{BOILER}	=	$CO_{2\text{-}BOILER} + CH_{4\text{-}BOILER} + N_2O_{BOILER}$
$CO_{2\text{-}BOILER}$	=	CO_2 emissions (in tons, as CO_2e) from the package boiler
$CO_{2\text{-}BOILER}$	=	(Amount of natural gas combusted in the boiler, scf) x (120,000 lb CO_2/million scf) x (1 ton / 2,000 lb)
$CH_{4\text{-}BOILER}$	=	Methane (CH_4) emissions (in tons, as CO_2e) from the package boiler
$CH_{4\text{-}BOILER}$	=	(Amount of natural gas combusted in the boiler, scf) x (2.3 lb CH_4/million scf) x (1 ton / 2,000 lb) x 25
N_2O_{BOILER}	=	Nitrous Oxide (N_2O) emissions (in tons, as CO_2e) from the package boiler
N_2O_{BOILER}	=	(Amount of natural gas combusted in the boiler, scf) x (0.64 lb N_2O/million scf) x (1 ton / 2,000 lb) x 298

GHG from the emission units listed are restricted to the limits provided in Section II.A. of this permit. If calculated GHG emissions from any listed emission unit exceed any individual limit in any 12 month period, the permittee shall notify the Department in writing within 15 days of the date the calculation was made.

H. **Methanol Emissions Calculations**: By the 15th day of each month, the owner/operator shall calculate and record the methanol emissions from the CO_2 Regenerator (EUs 11-L-310A and 11-L-310B) for the previous month. Total methanol emissions shall be calculated using the methanol concentration as measured by the most recent Department-approved performance test and the gas flow rate data from the flow meter for EP 11-L-310 required by this permit.

Methanol emissions from EP 11-L-310 are restricted to 9.50 tons/year. If total calculated emissions from EU 11-L-310 exceed 9.50 tons/year in any 12-month period, the permitee shall notify the Department in writing within 15 days of the date the calculation was made.

I. **Cooling Towers**: Per 40 CFR 63 Subpart Q, the permittee shall not use chromium based water treatment chemicals in the cooling towers.

J. **40 CFR 60, Subpart Db**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart Db – Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units.

K. **40 CFR 60, Subpart Ga**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart Ga – Standards of Performance for Nitric Acid Plants for Which Construction, Reconstruction, or Modification Commenced After October 14, 2011.

L. **40 CFR 60, Subpart IIII**: The permittee shall comply with all applicable requirements of 40 CFR 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

M. **40 CFR 63, Subpart ZZZZ**: The permittee shall comply with all applicable area source requirements of 40 CFR 63, Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.

N. **Construction**: Construction of the above described facility shall be in accordance with information provided in the permit application as well as any plans, specifications and supporting data submitted to the Department. The Department shall be notified ten days in advance of any significant deviations from the specifications furnished. The issuance of this Permit to Construct may be suspended or revoked if the Department determines that a significant deviation from the plans and specifications furnished has been or is to be made.

Any violation of a condition issued as part of this permit to construct as well as any construction which proceeds in variance with any information submitted in the application, is regarded as a violation of construction authority and is subject to enforcement action.

O. **Startup Notice**: A notification of the actual date of initial startup shall be submitted to the Department within 15 days after the date of initial startup.

P. **Title V Permit to Operate**: Within one year after startup of the units covered by this Permit to Construct, the owner/operator shall submit a permit application for a Title V Permit to Operate fo for the facility.

Q. **Permit Invalidation**: This permit shall become invalid if construction is not commenced within eighteen months after issuance of such permit, if construction is discontinued for a period of eighteen months or more; or if construction is not completed within a reasonable time.

R. **Fugitive Emissions**: The release of fugitive emissions shall comply with the applicable requirements of NDAC 33-15-17.

S. **Annual Emission Inventory/Annual Production Reports**: The owner/operator shall submit an annual emission inventory report or an annual production report, upon request, on forms supplied or approved by the Department.

T. **Source Operations**: Operations at the installation shall be in accordance with statements, representations, procedures and supporting data contained in the initial application, and any supplemental information or application(s) submitted thereafter. Any operations not listed in this permit are subject to all applicable North Dakota Air Pollution Control Rules.

U. **Alterations, Modifications or Changes**: Any alteration, repairing, expansion, or change in the method of operation of the source which results in the emission of an additional type or greater amount of air contaminants or which results in an increase in the ambient concentration of any air contaminant, must be reviewed and approved by the Department prior to the start of such alteration, repairing, expansion or change in the method of operation.

V. **Air Pollution from Internal Combustion Engines**: The permittee shall comply with all applicable requirements of NDAC 33-15-18-01 – Internal Combustion Engine Emissions Restricted.

W. **Nuisance or Danger**: This permit shall in no way authorize the maintenance of a nuisance or a danger to public health or safety.

X. **Malfunction Notification**: The owner/operator shall notify the Department of any malfunction which can be expected to last longer than twenty-four hours and can cause the emission of air contaminants in violation of applicable rules and regulations.

Y. **Operation of Air Pollution Control Equipment**: The owner/operator shall maintain and operate all air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

Z. **Transfer of Permit to Construct**: The holder of a permit to construct may not transfer such permit without prior approval from the Department.

AA. **Right of Entry**: Any duly authorized officer, employee or agent of the North Dakota Department of Health may enter and inspect any property, premise or place at which the source listed in Item I.B of this permit is located at any time for the purpose of ascertaining the state of compliance with the North Dakota Air Pollution Control Rules. The Department may conduct tests and take samples of air contaminants, fuel, processing material, and other materials which affect or may affect emissions of air contaminants from any source. The Department shall have the right to access and copy any records required by the Department's rules and to inspect monitoring equipment located on the premises.

BB. **Other Regulations**: The owner/operator of the source unit(s) described in Item I.B of this permit shall comply with all State and Federal environmental laws and rules. In addition, the owner/operator shall comply with all local burning, fire, zoning, and other applicable ordinances, codes, rules and regulations.

CC. **Permit Issuance**: This permit is issued in reliance upon the accuracy and completeness of the information set forth in the application. Notwithstanding the tentative nature of this information, the conditions of this permit herein become, upon the effective date of this permit, enforceable by the Department pursuant to any remedies it now has, or may in the future have, under the North Dakota Air Pollution Control Law, NDCC Chapter 23-25. Each and every condition of this permit is a material part thereof, and is not severable.

DD. **Odor Restrictions**: The owner/operator shall not discharge into the ambient air any objectionable odorous air contaminant which is in excess of the limits established in NDAC 33-15-16.

The owner/operator shall not discharge into the ambient air hydrogen sulfide (H_2S) in concentrations that would be objectionable on land owned or leased by the complainant or in areas normally accessed by the general public. For the purpose of complaint resolution, two samples with concentrations greater than 0.05 parts per million (50 parts per billion) sampled at least 15 minutes apart within a two-hour period and measured in accordance with Section 33-15-16-04 constitute a violation.

EE. **Sampling and Testing**: The Department may require the owner/operator to conduct tests to determine the emission rate of air contaminants from the source. The Department may observe the testing and may specify testing methods to be used. A signed copy of the test results shall be furnished to the Department within 60 days of the test date. The basis for this condition is NDAC 33-15-01-12 which is hereby incorporated into this permit by reference. To facilitate preparing for and conducting such tests, and to facilitate reporting the test results to the Department, the owner/operator shall follow the procedures and formats in the Department's Emission Testing Guideline.

FOR THE NORTH DAKOTA
DEPARTMENT OF HEALTH

Date_____ By_____
Terry L. O'Clair, P.E.
Director
Division of Air Quality